

1. GENERAL

- 1.1 The following specifications direct attention to certain required features of the design package, but do not purport to cover all details entering into the design, construction, and/or installation of the equipment.
- 1.2 Furnish _____ floating aerators. Each aerator shall consist of a motor, a direct drive propeller driven at a constant speed, a diffuser, a propeller guard, and an integral float.

2. PERFORMANCE

- 2.1 Each aerator shall be capable of a high oxygen transfer rate at a minimum of _____ pounds per motor brake horsepower hour.
- 2.2 Each aerator shall be capable of a direct pumpage rate of _____ gpm.

3. AERATOR DRIVE MOTOR

- 3.1 The motor shall deliver ____ brake horsepower at 3,450 rpms and shall be wired for ____ volts, ____ HZ, ____ phase service.
- 3.2 The motor shall be totally enclosed, water-cooled and water-lubricated and shall have a hermetically sealed stator and corrosion resistant stainless steel shell.
- 3.3 The motor shall, in all cases, equal or exceed ANSI/NEMA 250 and shall be UL508 recognized as well as CSA certified.
- 3.4 The motor winding shall be non-hygroscopic.
- 3.5 Basic insulation shall equal or exceed NEMA Class H.
- 3.6 A minimum service factor of 1.15 shall be furnished.
- 3.7 Motor manufacturer's name plate shall be provided with each motor and shall be securely fastened thereto and include the voltage, motor speed, amperage, service factor, serial number, and date code, which shall be stamped or otherwise permanently affixed.

3.8 MOTOR SHAFT

- 3.8.1 The motor shall have a one-piece shaft, continuous from the bottom bearing to the aerator's propeller.
- 3.8.2 The motor shaft shall be manufactured from Type 303 stainless steel.
- 3.8.3 The motor shaft shall be machined to a tolerance of plus or minus .002 T.I.R. from lower bearing to upper end of the motor shaft.
- 3.8.4 The motor shaft shall measure 5/8" in diameter at the top bearing.
- 3.8.5 The motor shaft nominal length shall not exceed more than 1-1/2 inches beyond the motor.

3.9 MOTOR BEARINGS

- 3.9.1 Bearings shall be water-lubricated. No ball bearings shall be used.
- 3.9.2 The top and bottom motor bearings shall be radial sleeve type.
- 3.9.3 The lower thrust bearing shall be a Kingsbury self-aligning, self-equalizing, water-lubricated thrust bearing.

3.10 MOTOR TERMINAL

- 3.10.1 The motor terminal shall be of the removable type, submersible connector construction, field replaceable without disturbing the seal of the stator.

4. DRIVE STRUCTURE ASSEMBLY

4.1 MOTOR MOUNT

- 4.1.1 The motor mount shall be designed to furnish maximum rigidity and stability with minimum flow interference and constructed of corrosion resistant material.

4.2 PAINT

- 4.2.1 The motor mount and the mounting collar will be coated with two coats of Themec Series 66 epoxy paint for a 6-mil thickness.

4.3 DIFFUSER

- 4.3.1 The diffuser shall be manufactured from non-corrosive material and be not less than 1/8' minimum sectional thickness and of material suitable for continuous wastewater and ultraviolet exposure.
- 4.3.2 The design of the diffuser head shall be such that the liquid spray will be discharged in an angle of 90 degrees to the motor shaft over a 360-degree omni-directional pattern in the horizontal plane.

4.4 STRAIN RODS AND SUPPORT TUBES

- 4.4.1 Strain rods shall be a minimum 3/4 inch diameter, 316 stainless steel, of the required length.
- 4.4.2 Support tubes shall be 1 inch OD, 316 stainless steel tubing.

4.5 DRIVE STRUCTURE FASTENING HARDWARE

- 4.5.1 All drive structure mounting hardware shall be of type 316 stainless steel.

4.6 JUNCTION BOX ASSEMBLY

- 4.6.1 The junction box shall be made of corrosion resistant materials in LB configuration and UL recognized C.S.A. certified.
- 4.6.2 Splice connectors shall be UL recognized C.S.A. certified.
- 4.6.3 Cord grips for power cable shall be of the strain relief type and non-corrosive.

5. MOUNTING HARDWARE

- 5.1 Mounting fasteners shall be stainless steel.
- 5.2 Motor mounting hardware will be designed in such a way as to furnish maximum rigidity and stability with minimum flow interference.

6. FLOTATION

- 6.1 The flotation unit shall be rotationally molded and be filled with closed cell non-hygroscopic, pressure-molded expanded polystyrene foam.

- 6.2 The flotation shall be capable of supporting not less than two (2) times the weight of the unit.
- 6.3 The flotation shall measure a minimum 36"X36" inches square and have a minimum cross sectional thickness of 4" inches.

7. PROPELLER

- 7.1 The propeller shall be precision molded non-corrosive material and shall be specifically designed for the application intended.
- 7.2 The propeller shall be streamlined to prevent cavitation and reduce drag, and shall have trailback blades to minimize fouling while in operation.
- 7.3 The propeller shall be hydraulically balanced to assure equalization of load under full operation.
- 7.4 The propeller shall be dynamically balanced to within 5 gram-centimeters.

8. VIBRATION

- 8.1 The propeller and motor rotor unit shall be dynamically balanced to a vibration level not to exceed .70 mils while hydraulically submerged.

9. STABILITY

- 9.1 The unit shall be designed so that 95% of the weight of the unit is below the top level of the float.
- 9.2 The aerator shall be unconditionally guaranteed not to capsize due to ice buildup.

10. ELECTRICAL SERVICE CABLE

- 10.1 Each unit shall be furnished with _____ feet of AWG #_____, UL listed, water resistant electrical cable.
- 10.2 Each unit will have a water tight removable power cord at a junction box located on the unit.
- 10.3 All single phase aerators will be provided with an equipment leakage circuit interrupter.

11. OPERATION AND MAINTENANCE MANAL

11.1 Operation and maintenance manuals shall be furnished before start up of the equipment.